

Original Communication

Are there age-related effects in antisocial personality disorders and psychopathy?

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Abstract

We investigated possible age differences in the frequency of antisocial personality disorder (ASPD), and of psychopathy according to Hare's criteria and its constituent features: In a cross-sectional study 226 male violent offenders, detained in adult or youth custody, were investigated using the Psychopathy Checklist Screening Version (PCL:SV) and the SCID II Interview. Their ages ranged from 18 to 59 years. Total PCL:SV score was negatively correlated with age. ANOVA showed that total PCL scores for three age groups differed significantly. Both effects were due entirely to Factor 2 of the PCL. Factor 1 was not related to age. The frequency of ASPD was also lower among older prisoners. The relationship with age was similar to that of PCL:SV Factor 2.

These results point to age-related effects in psychopathy and suggest that different aspects of psychopathy follow different developmental courses. The results of our group comparison suggest that the different subfacets of psychopathy are not stable over time to the same extent. In order to make statements about the course of intraindividual development, however, longitudinal studies would be required. © 2007 Elsevier Ltd and FFLM. All rights reserved.

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1. Introduction

We recently carried out a study comparing the course of prison sentences among adult violent offenders with and without psychopathy according to Hare's criteria.¹ An interesting secondary finding of this study was that those with psychopathy – the so-called “high scorers” on the

PCL – were significantly younger than the non-psychopathic group – the “low scorers”. As a result we considered the possibility that the psychopathy construct may vary with age. This would mean that the features of psychopathy are not static but dynamically variable and could, for example, be dependent on age.

The initial empirical findings on the long-term development of disorders in the antisocial spectrum are not entirely consistent. Robins et al.² reported an “antisocial burnout” effect as was found in another longitudinal study.³ Both studies found that, above 40 years of age, only about one

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third of those originally diagnosed as having antisocial personality disorder (ASPD) achieved the number of criteria required for this diagnosis. Another longitudinal study was unable to replicate these findings although observations were made over a period of up to 45 years.^{4,5} The contradiction may be explained by the fact that these studies did not differentiate between ASPD and Hare's psychopathy construct. For Hare psychopathy it was later shown that criminal activities persist beyond the 50th year of life.⁶ The conclusion initially drawn was therefore that psychopathy is not subject to age-related changes (review in 7).

If a more differentiated view is taken of psychopathy there are indications that antisocial activities do indeed decrease with increasing age while the superficial-grandiose attitudes and lack of empathy are reported to be stable over time and are also present, unchanged, at more advanced ages.⁸ In relation to PCL-based Hare psychopathy this means that potential changes in PCL score with increasing age may be due more to a decrease in dissocial "acting out", as reflected in Factor 2, than to alterations in the affective and interpersonal personality features making up Factor 1.⁹

Various theories can be put forward to explain changes in observable antisocial behaviour associated with increasing age. Psychosocial learning and adaptation processes constitute one area for consideration, especially where the affected individual is integrated into a resocialization programme. Although it is often claimed that individuals with psychopathy are inaccessible to therapy the empirical evidence supporting these claims is very limited.¹⁰ Alternatively, biological factors could be responsible: it has long been known that an age-related decrease occurs in the monoamines and gonadotrophins,^{11,12} which are considered to be linked with aggressive behaviour. This change could lead to a modification of antisocial behaviour. Findings on personality development in the general population may also be relevant for an explanation of the age effect.¹³

Definite statements on long-term changes in antisocial personality disorders would require more methodologically demanding longitudinal studies. However, cross-sectional comparisons can nevertheless act as a first step in showing up age-related differences. In this process antisocial personality disorder can be taken as the basic entity and psychopathy as a particular subgroup.¹⁴ Studies to generate hypotheses currently seem even more relevant for the psychopathy construct in the light of the 3- and 4-factor models now available.¹⁵ These models should yield differentiated statements on exactly which features are subject to possible age-related changes.

With this background the present study set out to investigate potentially age-related differences in psychopathy according to Hare among prisoners in two samples from different age classes within the German penal system. The results were intended to generate hypotheses for investigation in subsequent long-term studies. In particular the study aimed to test the following assumptions:

1. Like the feature "psychopathy", antisocial personality elements as defined by DSM are more strongly expressed in younger than in older age groups.
2. In the 2-factor model Factor 1 scores are independent of the prisoner's age.
3. In the 2-factor model Factor 2 scores are lower in older age groups.

2. Subjects and methods

2.1. Samples

In the present study we analysed data from two different samples of male violent offenders (total $n = 226$) detained in adult and youth custody, respectively. In Germany offenders over 18 years of age who are sentenced to imprisonment are normally sent to adult prisons. Offenders aged between 14 and 18 years are subject to the youth court law (*Jugendgerichtsgesetz*, JGG) and are sent to youth custody establishments. If youths aged from 18 to 21 are found to have deficits in maturity the JGG may also be applied to them so that a juvenile sentence extending up to the age of 25 years can be spent in a youth custody establishment. This explains the degree of overlap in age seen between the two samples:

- Sample 1 (115 participants, mean age 29.04 years, range 20–59) came from an adult prison. The participants were investigated between 2000 and 2004 as part of a project on psychotherapy,¹⁶ before inclusion in the therapy programme itself. All individuals in this sample were classed as mentally healthy and fully responsible for their actions according to German law. All had committed a violent offence (bodily harm: 63%; burglary: 53%; arson: 11%; homicide: 6%; sexual offence: 3% – multiple offences were possible). Psychopathy rating was carried out before the start of psychotherapy. It was therefore not possible that therapy influenced the expression of the features.
- Sample 2 (111 participants, mean age: 19.99 years, range 18–25) came from a youth custody establishment. Between 2001 and 2003 these individuals took part in a study on the occurrence of mental disturbances among juvenile and young adult violent offenders (Köhler et al., in preparation). Nearly all had committed a violent offence (bodily harm: 42%; burglary: 32%; arson: 3%; homicide: 6%; sexual offence: 3%, others: 11%). As a result of the caveats attached to the instruments used only prisoners over 18 years of age were included.

The design of both studies was organised in such a way that the results of the procedures which are further analysed here had no influence on the conditions of the prison sentence with regard to partial or early release. To justify the use of the PCL:SV and the SCID II with all participants, criteria for inclusion were knowledge of the German language, absence of psychosis and a minimum age of 18 years. All participants in the various studies had agreed

to an investigation using standardised instruments and had given their informed consent to a scientific evaluation of their data. This study was approved by the ethics committee of the Christian Albrechts University in Kiel, Germany.

For subsequent analysis the subjects were divided into three age groups according to the age divisions recognised in the German legal system. The first group was aged 18–21 years. Under German law these individuals can be classed as young adults (*Heranwachsende*) and can then be sent to youth custody establishments. The second group consisted of individuals aged 22–25 who may be detained either in youth custody or at an adult prison. The third group was made up of adults aged 26 years or over.

The instruments used were the German versions of the *Structured Clinical Interview for DSM-IV (SCID)*, to gather information on specific personality disorders, and the screening form of the *Psychopathy Checklist (PCL:SV)*. The instruments were administered by clinically experienced psychologists and psychiatrists who had received special training in both procedures.

2.2. PCL-SV

The screening version of the Psychopathy Checklist – Revised (PCL-R)¹⁷ was used (PCL:SV)^{18,19}; German version:²⁰ because it is the only PCL version available in an authorised German translation. Research has shown that the PCL:SV is highly correlated with the PCL-R. Both instruments can be considered metrically equivalent measures of the same psychological construct.²¹

The PCL:SV uses a total of 12 items to assess the feature “psychopathy”. These items are scored on the basis of a semistructured interview and examination of information on file. The items are organised into two subscales of six items each. The first subscale deals with interpersonal and affective symptoms while the second focuses on social deviance as reflected by chronically dissocial behaviour. The individual items are evaluated on a three point scale (feature not present, moderate or marked). Participants with a total score below 13 (low scorers) are considered “non-psychopaths” and those with scores between 13 and 17 (moderate scorers) are seen as having psychopathic tendencies. Values between 18 and 24 are seen as clear indicators of psychopathy. If psychopathy is diagnosed the participant is classed as difficult to treat and the criminal prognosis is felt to be poor. The distributions of these three PCL:SV score categories in the two samples and other descriptive statistics are shown in Table 1. Cronbach’s α , an indicator of reliability, was $\alpha = .77$ for Factor 1 and $\alpha = .75$ for Factor 2. This is within a similar order of magnitude to the values mentioned in Hare’s manual for the PCL-R,¹⁷ an instrument consisting of twice as many items.

2.3. SCID II

The *Structured Clinical Interview for DSM-IV*, SCID II²² is a multi-stage procedure for diagnosing personality

Table 1

Distribution of psychopathy indices (PCL scores) in the two samples

Psychopathy indices	Sample 1	Sample 2	Total sample
Mean age (SD)	29.04 (7.56)	19.99 (1.56)	24.60 (7.12)
Range	20–59	18–25	18–59
Low Scorers	41.7%	37.8%	39.8%
Moderate Scorers	37.4%	37.8%	37.6%
High Scorers	20.9%	24.3%	22.6%
Mean PCL:SV (SD)	13.14 (5.21)	13.98 (4.28)	13.55 (4.78)
Mean Factor 1 (SD)	6.00 (3.28)	5.46 (2.88)	5.73 (3.09)
Mean Factor 2 (SD)	7.14 (3.09)	8.52 (2.39)	7.82 (2.84)
N	115	111	226

disorders according to DSM-IV. It has high interrater reliability. A questionnaire is first presented in which the questions contain the criteria for DSM-IV personality disorders. In the subsequent interview, the questions that received a positive answer are targeted by the interviewer in further questioning to ascertain whether the individual criteria are fulfilled. If the required minimum number of criteria is reached the relevant personality disorder is diagnosed. The SCID II has proved itself in the investigation of offenders as well as with other subject groups. It permits both category diagnosis (disorder present/not present) and, via the D-score, assessment of the level of severity of the disorder.^{23–25}

2.4. Statistical evaluation methods

The hypothesized connection between age and PCL:SV score was analyzed using Pearson’s correlation coefficient. Data for the two sample populations were pooled for this analysis. The legally relevant age groups 18–21 (youths), 22–25 (young adults) and 26 and over (adults) were compared by means of a single factor univariate analysis of variance (ANOVA) and a priori contrast tests.

The relationship between age and occurrence of an ASPD was examined using a point biserial correlation coefficient.

3. Results

The distribution of all participants, grouped by age, among the three PCL:SV score categories (low, moderate and high) is shown in Table 2.

There was a significant negative correlation between the total PCL:SV score and the age of the individual ($r = -.183$; $p = .003$). This correlation was due entirely to Factor 2 of the PCL:SV. A highly significant correlation existed between Factor 2 and age ($r = -.358$; $p < .0001$). However, no linear relationship could be detected between Factor 1 and age ($r = .046$; $p = .254$ Fig. 1).

Comparison of the three age groups- youths (18–21 years), young adults (22–25 years) and adults (26 years and over) – gave a result that was consistent with this finding. An ANOVA performed on the total PCL:SV scores for

Table 2
Crosstabulation of PCL:SV categories and age quintiles

			PCL:SV category			Total
			Low scorers	Moderate scorers	High scorers	
Quintiles	20	N	11	19	10	40
		% within quantile	27.5%	47.5%	25.0%	100.0%
	40	N	18	14	9	41
		% within quantile	43.9%	34.1%	22.0%	100.0%
	60	N	16	17	16	49
		% within quantile	32.7%	34.7%	32.7%	100.0%
	80	N	23	19	10	52
		% within quantile	44.2%	36.5%	19.2%	100.0%
	100	N	22	16	6	44
		% within quantile	50.0%	36.4%	13.6%	100.0%
Total	N	90	85	51	226	
	% within quantile	39.8%	37.6%	22.6%	100.0%	

the three age groups found them to differ significantly from one another ($F = 3.918$; $p = .021$). Once again the difference was entirely due to the contribution of Factor 2. The difference between the groups on this part of the PCL:SV is highly significant ($F = 13.588$; $p < .0001$), while the Factor 1 values did not differ significantly ($F = .172$; $p = .842$). The total scores of the adult participants were significantly lower than those of the youths ($T = 2.580$; $p = .005$) and those of the young adults ($T = 2.300$; $p = .011$).

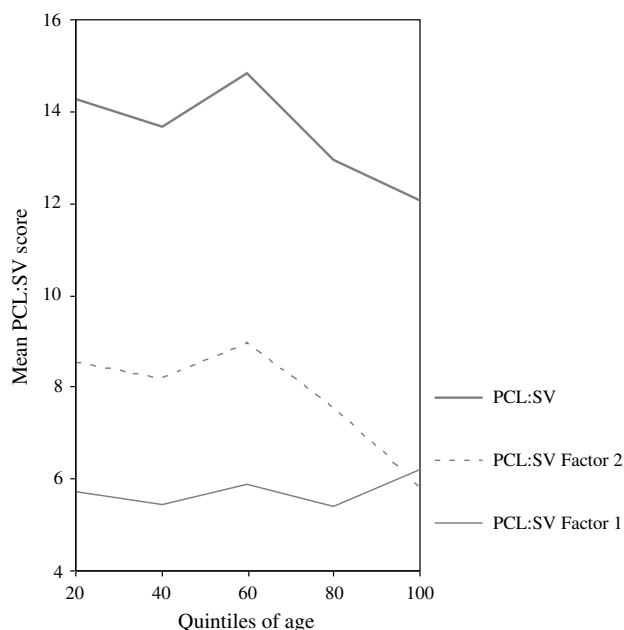


Fig. 1. Mean PCL scores (total score, Factor 1 and Factor 2) for participants in each age category. While the average Factor 1 values remain constant with increasing age, the average Factor 2 values decrease, and the total scores decrease with them.

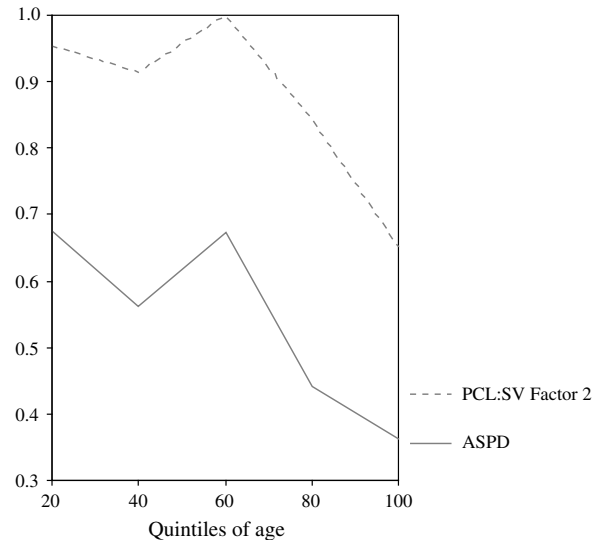


Fig. 2. Analogous course of PCL:SV Factor 2 score and relative frequency of ASPD in relation to age. The Factor 2 scores were rescaled to a maximum of 1 for better comparability.

These differences were in turn due to differing levels of expression of Factor 2: while the adults had significantly lower Factor 2 scores than the youths ($T = 5.010$; $p < .0001$) and the young adults ($T = 3.901$; $p < .0001$), the Factor 1 values for the three groups showed almost no difference ($T = -.427$; $p = .335$ and $T = .110$; $p = .456$).

As we postulated at the start, the frequency of ASPD also decreased with increasing age ($r = -.226$; $p < .0001$ – Fig. 2).

4. Discussion

Unlike previous long-term studies on this topic the present study made a clear distinction between PCL-based psychopathy and ASPD as defined by DSM. Our results nevertheless support the assumption that, as other groups have suggested,^{2,3} an “antisocial burnout” process occurs. The age groups differed both with respect to the expression of DSM personality features and in terms of their total PCL scores. Further analysis of the group differences within the psychopathy construct showed that Factor 2 alone was responsible for this effect. In the older prisoners’ group the total Factor 2 score was markedly lower than among the younger prisoners while Factor 1 was independent of age. This is the first time that these relationships have been reported for imprisoned violent offenders in Germany although similar results have been reported in previous cross-sectional studies of a north American sample of imprisoned offenders^{8,17} and a German sample of prisoners in custody awaiting trial.⁹

The connection between age and Factor 2 could be suspected of being due to items 11 and 12 alone which focus upon delinquent behaviours in adolescence and adulthood. This assumption is not supported by the data: if these items are eliminated from the calculation, the correlation rather becomes slightly stronger ($r = .361$; $p < .0001$). Factor 2

focuses on observable behaviour and also includes criminal activities as such. It thus possesses similarities to the DSM-IV diagnostic criteria for antisocial personality disorder (ASPD). A close relationship can indeed be demonstrated between these two constructs: the diagnosis of ASPD is often associated with a high Factor 2 score²⁶. It is therefore not surprising that ASPD diagnoses in our sample were less frequent among older than among younger participants, showing a distribution analogous to that of PCL:SV Factor 2 scores. When the recently proposed 4 factor model is considered, the results are exactly as would be expected given the findings for the 2 factor model: no differences are apparent between our groups for the sub-factors 1 and 2 ($r = .093$; $r = -.015$), but differences are found between the age groups for Factors 3 and 4 ($r = -.396$; $r = -.306$).

In our study two separate sample populations were pooled. This may appear inappropriate from a theoretical point of view and potentially threatening to internal validity. However, as there are only minor differences in mean factor scores (see Table 1) we consider it appropriate to pool the samples. Results from a Latent Class Analysis further supported this procedure: the latent classes did not match the subsamples at all. Aggregating the data thus improves external validity rather than decreasing internal validity.

Because of the design used in our study it is not possible for us to make statements relating to individual changes and developments in the expression of antisocial personality. However, the differences demonstrated between the age classes are an encouragement to perform longitudinal studies in which it would be possible to investigate actual changes occurring in the expression of antisocial personality disorders in the long term. Furthermore, if PCL-based psychopathy is further divided into subtypes with different levels of expression of narcissistic, antisocial and borderline features as proposed by some groups,²⁷ hypotheses for different developmental courses can be developed on the basis of the results of our study. Individuals with psychopathy including stronger antisocial elements tend to achieve high scores on Factor 2²⁶ and would therefore be expected to show a decrease in clinical severity with age. However, the narcissistic subtypes, where the tendency is mainly towards high values on Factor 1, would be expected to remain at a constant level of severity in old age. According to the specifications of the PCL-based psychopathy construct, the hypothesis can also be advanced that the antisocial behaviour (reflected by Factor 2) changes with age in the direction of social normalization while the affective-emotional abnormalities (reflected by Factor 1) persist unchanged into old age.

This would suggest that Factor 1 records primarily personality traits while Factor 2 records personality states, as was intended by those who established the modern psychopathy construct.²⁸ This is particularly interesting in the light of the finding that a high Factor 2 score is associated with a high probability of reoffending.²⁹ Finally, it

would be possible to propose reasons for a hypothesised relationship between the age-related course of the five factor model of personality (FFM) and psychopathy. Lynam and Derefinko³⁰ demonstrated a significant positive relationship between Factor 2 of the PCL and the Neuroticism (N) scale of the FFM. This finding is probably due primarily to the PCL items “impulsive” and “poor behaviour controls” as these qualities are allocated to the N factor in the FFM. By contrast negative correlations were found between PCL Factor 2 and the dimensions “conscientiousness” and “agreeableness” (A) of the FFM. Thus Factor 2 of the PCL, unlike Factor 1, shows relationships with three dimensions of the FFM. These three dimensions are all subject to age-related changes.^{13,31} Our own calculations for German samples confirmed these differential relationships between psychopathy and the FFM (Köhler et al., in prep.). This means that, when the individual items are considered, psychopathy is revealed to be a more heterogeneous personality construct with different dimensions.³²

5. Outlook

To summarize, it has been established that the psychopathy construct permits a more differentiated view of possible age-related changes in the development of dissocial features than does antisocial personality disorder as defined by DSM-IV. This suggests that the results of previous studies of the long-term development of personalities in the antisocial spectrum may have given a somewhat imprecise picture of events.

At the same time it must be emphasised that our study has been able to throw up interesting questions but has not yet been able to provide conclusive answers to them. Are the individual personality features and behaviour patterns of the psychopathy factors stable over time to the same extent? If differences are found for the subfacets of psychopathy, what are the reasons and what are the resulting implications? The group differences demonstrated in our cross-sectional study are statistically highly significant but could be attributable to generation effects resulting from changes in social conditions in Germany in particular. For example, the so-called reunification of East and West Germany has affected social structures in the country and globalisation may have led to increases in isolation and anonymity. In the light of historical descriptions of antisocial personalities, which are relatively constant, these interpretations appear unlikely³³ but they can only be excluded with certainty by carrying out longitudinal studies. This approach appears even more meaningful particularly when the four factor model of psychopathy³⁴ is considered. Longitudinal studies could also yield differentiated information of relevance for individual prognosis indicating which subfacets of personality can define a favourable or unfavourable legal prognosis. If the natural age-related development of PCL-based psychopathy could be described, further investigations could address the question of whether

psychotherapeutic and/or pharmacological interventions can exert an influence on this developmental course.

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